

# **Wind Powering America: Goals, Approach, Perspectives, and Prospects**

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## WIND POWERING AMERICA: GOALS, APPROACH, PERSPECTIVES, AND PROSPECTS

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**ABSTRACT:** While wind development activity in the United States has dramatically increased over the last 3 years, it has been mainly driven by policy mandates in the investor owned utility community. Also, while significant wind development has and is now occurring in the Northwest, the Great Plains, the Rocky Mountains, Texas, and several eastern states, there remain a number of states that have excellent resources that are essentially undeveloped. Additionally, the U.S. federal agencies represent the largest institutional load in the world, and thus are a potential large market for green (wind) energy. Rural America is economically stressed and traditional agricultural incomes are seriously threatened; wind development in these windy regions offers one of the most promising “crops” of the 21<sup>st</sup> century. Public power serves these communities, and local development of wind with low-cost financing appears to be competitive with new conventional fossil energy sources.

### 1 GOALS AND OBJECTIVES

Wind Powering America, a U.S. Department of Energy (DOE) initiative, is a commitment to dramatically increase the use of wind energy in the United States. Wind Powering America's (WPA's) objectives are to increase rural economic development, protect the environment, and increase energy security. The goals are to (1) provide 5% of the nation's electricity by 2020, with near-term goals of 500 megawatts (MW) by 2005 and 10,000 MW by 2010; (2) increase the number of states with 20 MW of wind capacity to 16 by 2005 and 24 by 2010; and (3) increase the use of wind power by the federal government to 5% of its annual consumption by 2010.

### 2 APPROACH

Following the 1999 WPA initiative announcement, WPA formed a national strategy team and held a series of stakeholder group meetings to gather input on the opportunities, benefits, and challenges for WPA to achieve its goals. Four themes emerged from these deliberations: state-based activities; rural economic development; greening federal loads, and utility partnerships. A set of activities was developed to support each theme and a team composed of members from DOE, the National Renewable Energy Laboratory (NREL), and various stakeholder groups was formed to pursue each theme. General activities that support all themes include application-financial analysis tools, outreach materials, formation of strategic partnerships, and a WPA website.

#### 2.1 State-based activities

The key activities of the state theme include development of state wind working groups, workshops, anemometer loan programs, landowner and community meetings,

state wind resource maps, wind-based supplemental environmental projects (SEPS), assistance in designing policy implementation instruments, and the development of state-specific small wind consumer guides.

#### 2.2 Rural economic development

The key activities of the rural economic theme include: outreach to agricultural and rural development interests; economic development analysis tools; case study documentation; Native American wind interest groups; Native American anemometer loan program; irrigation pilot project; and an innovative ownership pilot.

#### 2.3 Greening federal loads

The key activities of the greening federal loads theme are: federal load aggregation, green tags, Federal Energy Management Program (FEMP) coordination, and a special effort to “green” the U.S. Department of Defense (DoD).

#### 2.4 Utility partnerships

The key activities of the utility partnerships theme are: public power outreach and recognition program, Power Marketing Administration (PMA) green tags, and targeted strategic technical analyses (e.g., wind-hydro system integration and transmission constraints).

### 3 OPERATING PRINCIPLES

WPA established a set of 12 operating principles to guide program investments:

1. Work at market margins—WPA concentrates its efforts in “stuck” markets, i.e., avoid investing resources in markets that are fully commercial and active. Examples include states with good wind resources but little wind development, Native American reservations, public power organizations, and federal government loads.

2. Leverage existing institutional relationships—DOE has established organizations that focus on outreach to federal (FEMP) and state entities (DOE regional offices). DOE's PMAs are well positioned to incorporate wind into the public power market. The states have energy and environmental offices that formulate and implement policies that can impact wind development. WPA engages these existing agencies to leverage their established capabilities, contacts, and activities.
3. Create new partnerships—In focus areas, WPA establishes strategic partnerships with agencies/institutions that represent important stakeholder groups that have heretofore underpursued wind development on behalf of their members. Examples of such organizational partners are the National Rural Electric Association (NRECA), the American Public Power Association (APPA), the American Corn Growers Association (ACGA), the Intertribal Council on Utility Policy (ICOU), and the Council of Energy Resource Tribes (CERT).
4. Pursue strategic opportunities—In situations where wind can significantly expand its application boundaries, WPA pursues the necessary education, analysis, pilot projects, and partnerships to implement the expansion. An example is the supplemental environmental projects (SEP) in which air quality violators can purchase wind power in lieu of paying the fine.
5. Develop innovative pilot projects—In cases of new applications or ownership possibilities, WPA collaborates on the design and implementation of pilot projects that demonstrate the administrative, policy, and techno-economic aspects of the innovation. Completed pilot projects include federal load aggregation and SEP implementation. Currently, WPA is pursuing pilots on irrigation net metering, rural ownership options for small wind systems, and Native American wind working groups and installations. A pilot project must have significant regional or national replication potential for it to receive WPA investment.
6. Replicate successes—Following the successful completion of a pilot project, WPA will work with local, state, and regional organizations to replicate the application.
7. Educate, equip, and support state wind working groups—WPA recognizes the necessity of developing multi-stakeholder support of wind energy prior to the development of enabling policies. To that end, WPA helps state stakeholder groups organize and educate wind working groups to discuss the barriers to and benefits of wind energy development. This effort is aimed at developing a strategic action plan that often includes state-wide, targeted, and landowner workshops.
8. Select and address challenging strategic markets—Although certain institutions have great potential, there are significant institutional barriers to wind development within those institutions. WPA focuses its outreach and technical assistance on these institutions because they represent a difficult market for commercial business. Currently, the institutions WPA focuses on include the Department of Defense, Native Americans, and rural electric cooperatives.
9. Develop and disseminate targeted information, analyses, and tools—WPA augments the efforts of DOE's wind research program, the American Wind Energy Association (AWEA), and other wind related organizations to identify and address gaps in technical information and tools needed for its four thematic areas. Examples include: development and access to simplified spreadsheet tools for initial analyses of wind project economics, irrigation net metering projects, and economic development impacts; development and distribution of state specific wind maps and small wind application guidebooks; and publication of a brochure that focuses on wind opportunities, case studies, and economics for rural electric coops.
10. Document activities and resources—WPA has developed a user-friendly website on which it posts information and links for all four thematic areas ([www.windpoweringamerica.gov](http://www.windpoweringamerica.gov)). The WPA web site also provides regional and national event calendars, wind resource maps, stakeholder interviews, analytical tools, and recent WPA presentations.
11. Utilize existing national, regional, and local expertise—To enhance credibility with the various wind stakeholder groups, WPA utilizes appropriate experienced stakeholders to address the issues, share their experience, and discuss opportunities in targeted workshops.
12. Coordinate with established wind institutional resources—WPA recognizes the established efforts, networks, and effectiveness of existing wind energy related organizations, including AWEA, the National Wind Coordinating Committee (NWCC), and the Utility Wind Interest Group (UWIG). WPA coordinates and participates with these groups to ensure collaboration and to add value to its activities.

#### 4 STAKEHOLDER PERSPECTIVES

Because WPA values the different perspectives of industry stakeholders on the value of wind energy, it highlighted representatives of 12 stakeholder groups in its annual calendar in an attempt to appeal to a broad set of stakeholders ([www.windpoweringamerica.gov/calendar.html](http://www.windpoweringamerica.gov/calendar.html)). A representative selection of these perspectives follows.

##### Rural electric cooperatives:

"It seems only natural for rural utilities to do everything they can to advance both farm-based renewable energy development and rural economic development in a cost-effective way. In my opinion, wind energy is the next great chapter in the rural electrification story."

*Aaron Jones, Washington Rural Electric Cooperative Association; Olympia, Washington*

##### Municipal electric utilities:

"Our customers wanted this wind program and it was our job to deliver it. It has turned out to be a huge source of community pride. The turbines are a visible landmark showing the Moorhead Community's commitment to a better world for our children."

*Christopher Reed, Moorhead Public Service, Moorhead, Minnesota*

Investor-owned utilities:

“Wind energy adds diversity to our generation fleet and provides a hedge against fossil fuel price increases. In addition, the development of renewable energy resources is widely supported by the public and our customers.”

*Rick Walker, director, Renewable Energy Business Development, AEP Energy Services, Inc., Dallas, Texas*

Utility commissioners:

“You don’t have to be a utility commissioner to see that we need better regulatory policies to achieve the diversity, economic development, and environmental benefits of wind power.”

*Bob Anderson, Montana Public Service Commission, Helena, Montana*

County commissioners/rural landowners:

“Wind is a homegrown energy that we can harvest right alongside our corn, soybeans, and other crops. We can

*State Representative Tom Sloan, Lawrence, Kansas*

Native Americans:

“In evaluating the potential of wind energy generation, Native Americans realize that wind power is not only consistent with our cultural values and spiritual beliefs, but can also be a means of achieving Native sustainable homeland economies.”

*Ronald Neiss, Rosebud Utility Commission President, Rosebud Sioux Reservation, South Dakota*

## 5 PROGRAM REPRESENTATION

The three key dimensions (activities, stakeholders, regional focus) of the WPA program can be represented as a cubic matrix (Figure 1).

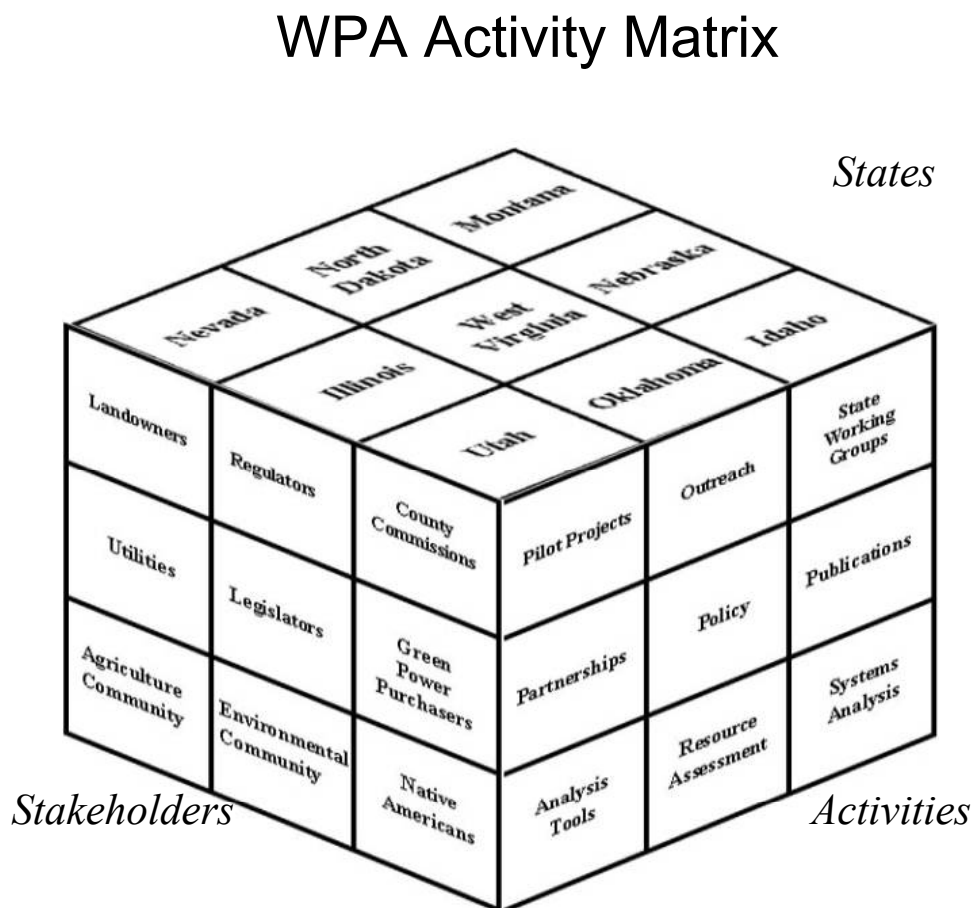


Figure 1. Wind Powering America Program matrix.

use the energy in our local communities or we can export it to other markets. We need to look carefully at wind energy as a source of economic growth for our region.”

*David Benson, Farmer and County Commissioner, Nobles County, Minnesota*

State legislators:

“The wind offers energy independence for many Kansas residents. Federal, state, and local governments should work together to provide access to affordable energy choices.”

## 6 PROSPECTS

With the extension of the production tax credit (PTC), wind development will continue in 2002 and 2003. AWEA estimates 600–1000 MW of wind energy capacity will be installed in 2002. This will most likely exceed the WPA goal of 5000 MW installed by 2005 (4261 MW was installed at the end of 2001). WPA expects the number of states that exceed 20 MW installed capacity will expand at a pace significantly faster than originally anticipated. By the end of 2001, there were 12

states with more than 20 MW installed. Assuming the further extension of the PTC, WPA forecasts having 17 states meet or exceed this level by the end of 2003 (1 more than 2005 goal) and 26 by the end of 2005 (2 more than 2010 goal). With the successful development of the low-wind-speed turbine and progress on the state, and possibly, federal policy fronts, it is not unreasonable to expect that 39 states will have a minimum of 20 MW installed by 2010. WPA also expects to see a diversified portfolio of project sizes, ownership structures, applications, and system configurations, each suited to

state and regional markets, resources, policies, and conditions.

WPA will remain responsive to stakeholder interests and needs and will adapt its activities to augment the expanding commercial markets strategically.

Carpe ventem!

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